

AMERICAN BEE JOURNAL



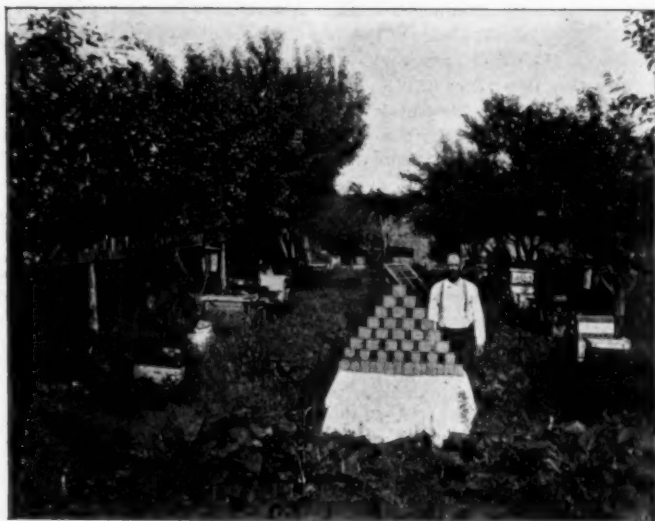
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GEORGE W. YORK,
Editor.

CHICAGO, ILL., MARCH 13, 1902.

FORTY-SECOND YEAR
No. 11.

WEEKLY



MR. F. W. HALL AND APIARY, OF SIOUX CO., IOWA.
—(See page 162.)

THE AMERICAN BEE JOURNAL

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EDITOR—George W. York.
DEPT. EDITORS—Dr. C. C. Miller, E. E. Hasty.
SPECIAL CORRESPONDENTS—G. M. Doolittle,
Prof. A. J. Cook, C. P. Dadant,
R. C. Aikin, F. Greiner, Emma M. Wilson,
A. Getaz, and others.

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National Bee-Keepers' Association

OBJECTS:

To promote and protect the interests of its members.
To prevent the adulteration of honey.
To prosecute dishonest honey-dealers.

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MEMBERSHIP DUES, \$1.00 a year.

If more convenient, Dues may be sent to the office of the American Bee Journal, when they will be forwarded to Mr. Secor, who will mail individual receipts.

A Celluloid Queen-Button is a very pretty thing for a bee-keeper or honey-seller to wear on his coat-lapel. It often serves to introduce the subject of honey, and frequently leads to a sale.

NOTE.—One reader writes: "I have every reason to believe that it would be a very good idea for every bee-keeper to wear one [of the buttons] as it will cause people to ask questions about the busy bee, and many a conversation thus started would wind up with the sale of more or less honey; at any rate it would give the bee-keeper a superior opportunity to enlighten many a person in regard to honey and bees."

The picture shown herewith is a reproduction of a motto queen-button that we are furnishing to bee-keepers. It has a pin on the underside to fasten it.

Price, by mail, 6 cents; two for 10 cents; or 6 for 25 cents. Send all orders to the office of the American Bee Journal.



Weekly Budget.

MR. JAS. A. GREEN of LaSalle Co., Ill., is moving to Mesa Co., Colo., mainly on account of his wife's health. He will keep bees there. Illinois can't afford to lose many such bee-keepers as Mr. Green. But our loss will be Colorado's gain. Mr. Green has an excellent article on page 166.

ABUNDANT RAINS are being reported from Southern California. These will help to insure a honey crop. Some day all of California's best crops of honey, and all the honey produced elsewhere in this country, will not be enough to supply the demand. You see, we have faith in the future honey-business of our country. But be sure to produce only the best honey possible, both in quality and flavor.

MR. THOMAS G. NEWMAN, for many years editor of the American Bee Journal previous to about ten years ago, and now living in San Francisco, writing us Feb. 27 had this to say concerning the condition of his eye-sight:

"I am glad to say that after having suffered terrible inconveniences during the past three years by paralyzed optic nerves, I am beginning to see some little improvement, and have much confidence that my vision will soon return. For you know how much it is needed in such work as I have to do. To depend upon the eyes of others for all that I can learn about the outside world has been a great affliction on account of its long continuation."

Mr. Newman's hosts of friends will be rejoiced to learn of the improved condition of his sight, and hope for speedy as well as entire recovery.

Mr. Newman is still connected with the bee-fraternity through being a member of the Board of Directors of the National Bee-Keepers' Association.

THE APIARY OF MR. F. W. HALL we present on the first page of this number. Here is what he has to say about it.

As promised some time ago, I send you a picture of my home and bee-yard. The general appearance of the latter gives one the impression of a veritable weed-patch, or African jungle, which former will not be much amiss. "Too many irons in the fire" made it impossible to keep some from burning, so I let that burn which did the least harm. Thus the blue-grass, timothy, clover and several kinds of weeds, had their own way save what I tramped down passing two and fro in the various manipulations of the bee-hives and fixtures, which, up to the time of photographing (July 4th), and some time afterward, was a good deal.

As you look at the picture you are looking toward the east, the sun at the 4:30 o'clock mark, and the mercury registering 100 degrees in the shade. The large-leaved plant in the foreground is rhubarb, the trees on the right are apple, cherry and three peach trees, south of which row is sweet corn (some 8 or 10 rows) and south of which is the garden; then the house and lawn (not in sight). The north row are apples, north of which are six other rows and all heavily loaded with apples, but not discernible. At the further end is a plum thicket, which extends clear across the east end of the orchard. A heavy row of willows some 25 feet in height border the north side of the orchard, and extend clear across the north

side and east end of the seven-acre lot, which give effective wind-break.

The old building in the background is a hen-house, which I expect to move to another location and build a bee-house with wintering cellar underneath. You will notice two (one on either side) milk-stool looking arrangements hanging in the trees; these are simply sticks of stovewood with a board nailed on one and a long wire hook to hang and handle it with. I smear them occasionally with the slum-gum from the wax-extractor. To use them, if they (the bees) do not voluntarily alight on them, (when I see they have begun to cluster), I hang the swarming-block as near as possible in the midst of them, and four out of five swarms in 1889 and 1900, used the blocks, but this year (1901) only four or five out of 25 used them; but I took no pains to induce them, as I found they were inclined to go to the evergreens and a small cherry-tree in the garden, and it was easy to live them from the trees.

The bees are not all in sight, some of them being back out of range of the camera.

I have the 8, 9 and 10 frame Langstroth hives, and three or four box-hives, which I have neglected to transfer. I like the 10-frame best for my locality, but may change my mind in time.

That pile of honey, 60 sections, (not all in sight but equally well filled), was just taken from one colony, there being thirty-two 4x5 no-bee-way Danz. sections, and twenty-eight 4x4x4 bee-way sections. The bee-way sections had separators between, except one separator which is left out, and two of the sections on the left show the result. The colony which produced the above, produced 250 such, and a super of extracting frames of honey and went into winter quarters in a 10-frame hive, bees and honey weighing 69 pounds. A daily record of the loss and gain was kept of this colony from spring until fall, but I cannot give the record, as a part of it was kept on the hive-cover and was packed away on a hive in the cellar before taking a copy. I do not know anything about the length of tongue of the bees of this colony, only that they worked red clover; but so did all the 58 colonies, so far as I could tell.

Aside from the above gains this colony cast a swarm June 5, which united with another swarm from another colony. The old queen being clipped did not go with the swarm, but went back in the old home and tore down the queen-cells and did not swarm any more. They were making a gain of five to seven pounds per day, but on this day they were 4½ pounds lighter.

My bees fairly tumble over each other working on sweet-corn blossoms (tassels), and I am satisfied they were after something else than pollen.

F. W. HALL.
Sioux Co., Iowa.

CONVENTION NOTICES.

Utah.—The Utah State Bee-Keepers' Association will hold its annual convention in the City and County Building, Salt Lake City, April 5, 1902, at 10 a.m. This promises to be an interesting convention. All are invited. It is desired to form an exchange for the protection and benefit of our bee-keepers. Come and aid a good cause. It is expected that every county will be represented. J. B. FAGG, Sec.

E. S. LOVESY, Pres.

Chicago.—Some amendments to the constitution of the Chicago Bee-Keepers' Association have been proposed, and the Executive Committee has ordered them to be brought before the next regular meeting for decision. It is proposed to change the name to "Chicago-Northwestern Bee-Keepers' Association;" and to change the time of meeting to "the first Wednesday and Thursday of December, or such other days as may be selected by the Executive Committee." The object of this is to make Chicago the rallying point for the whole Northwest, or so much of it as is likely to run to Chicago to trade or attend exhibitions. I believe our association is now the largest local association in America. We remitted to the National Association for 62 members. Our mailing list is about 300, or about ¼ of those in our territory. HERMAN F. MOORE, Sec.

ESTABLISHED IN 1861 AMERICAN THE OLDEST BEE-PAPER IN AMERICA BEE JOURNAL

42d YEAR.

CHICAGO, ILL., MARCH 13, 1902.

No. 11.

Editorial.

Too Much Theory is the complaint Editor Hutchinson has had from some of his readers. Children don't always know what's good for them, Mr. Hutchinson. Americans are nothing if not practical. A man may be a good engineer without knowing just how a locomotive is built; but he will be a better one if he knows just how the different parts of his machine are put together.

Comb Honey in Barrels.—G. A. Deadman, in the Canadian Bee Journal, gives as one argument in favor of shipping comb honey in barrels the saving of freight. Honey in barrels goes as second-class freight, and as the classification does not specify extracted honey, he ships comb honey at second-class rates, the only way in which he can get so low rates, as will be seen by the following table:

Honey in glass, packed in cases.....	1st class
Honey in cans, not boxed.....	1st "
Honey in cans, boxed or crated.....	2d "
Honey in kegs or barrels.....	2d "
Honey in comb, boxed, owner's risk.....	1st "

Consumption of Stores, says M. Bellot in Revue Int., in well-protected colonies, is sometimes not more than one kilogram (2.2 pounds) for the months of November, December and January; but as soon as the bees are in activity, or even simply in movement, the consumption increases in an incredible degree. The effect of activity upon the amount of stores consumed is strikingly shown in the many swarms that he ships. For a swarm of nearly 4 pounds he calculates a consumption of 17 to 20 ounces the first day, and a little less upon succeeding days. A swarm of 4½ pounds during a journey of 11 days consumed somewhat more than 2½ pounds of honey. During the latter part of the journey the bees became accustomed to the disturbance, and quieted down so as to consume less.

Waste of Time at Conventions receives some vigorous handling from F. L. Thompson, in the Progressive Bee-Keeper. He says:

When I get up to talk I feel like a dull and rusty augur boring into tough wood. So when I listen to the false starts, the twice or thrice told phrases and the indecisive expressions that themselves make repetition necessary. I feel that we are all about in the same box anyway—if I think about it at all. But what does make me feel as if little ants were

crawling all over me, is for and easy talker—one who can say just what he wants to—to get up and deliberately ramble all over creation, just as if he were in a corner grocery.

Also that when bee-keepers "drive many miles to a convention, or pay railroad fare and hotel bills, they have a right to expect that the limited time of the convention itself (not speaking of the intermissions which can be spent socially if desired,) shall be devoted to that which conventions alone can give; and that anything else, no matter how valuable, which can as well be procured in other ways, shall be rigorously excluded. The presiding officer should consider it one of his chief duties to keep the discussion business-like to the point."

Large Ventilation for Bee-Cellars is advocated in Gleanings in Bee-Culture by T. F. Bingham. Instead of a 3-inch ventilator-flue, 16 inches is better. He says:

My first winter's experience with a three-inch ventilator-flue in my cellar demonstrated conclusively its insufficiency. My hives, like Mr. Doolittle's, became charged with water; and, while not painted, they do not fail to show that they have been five months in a warm, damp atmosphere. A hundred colonies of bees consuming 400 pounds of honey per month would liberate not less than 35 to 40 pounds of water per week. Just suppose two pails of water to be thrown into an airtight cellar once every Sunday for five months, said cellar to be at a temperature of 40 to 50 degrees.

Size of Hives for Idaho.—From the report of the Idaho convention given in the Rocky Mountain Bee Journal, the following is taken:

Pennington Bros. found that the average good queen could occupy 13 frames before the honey-flow. On these large hives comb-honey supers holding 40 4x5 sections are used, with shallow extracting combs when running for extracted honey. They found that such a colony would fill 40 sections as quickly as an 8-frame colony would fill 24 sections.

Mrs. Paul preferred the 8-frame hive for comb honey.

E. F. Atwater gave the bees 10, 16 or 20 frames before the flow and then contracted to 8 or 10 frames when the flow began, with a preference for 8 frames.

Wax-Presses and Solar Extractors.

Wax-presses have come prominently to the front lately, but R. C. Aikin thinks there is still use for the solar wax-extractor. It seems to be a great waste to depend on the solar for old combs, and when it has done its best on any combs there is still paying work for the press, but Mr. Aikin, in Gleanings in Bee-Culture, expresses his view as to the further need of the solar in these words:

A press is a necessity and a money-saver. You will now say, if we must have a press, why build a solar? I will tell you. There is scarcely a bit of comb, burr-comb, cappings, or whatever you want to melt, but has in it more or less honey. If you put these through

the water process in either bag or press, you lose this honey. The saving in honey that can be used in feeding or in vinegar-making, and even for table use, will soon pay for several solars. It also saves time and loss in other ways, and the first run of wax that is gotten by the solar is brighter and nicer than can be had by the wet process. One who has never used a solar will have little idea how much honey can be accumulated by means of the solar—just that much saved. The slumgum taken from the solar can be worked by the press later at your convenience.

To this Editor Root replies:

I myself believe, and have so stated, that the solar wax-extractor has its place. I believe that nearly all refuse, so far as possible, should be put through it first, because the wax that the sun renders out is of a superior quality. But the slumgum from the solar and old combs should be put through the wax-press. A bee-keeper who thinks he can get along without a press of some kind is probably throwing away gold dollars by the handful. All refuse from the sun machines should be by all means saved.

Importance of Even Temperature in bee-cellars is urged by R. F. Holtermann in Gleanings in Bee-Culture. Even the variation of one degree causes a change in the position of the bees, and this activity is detrimental to the best wintering. One particular colony has been closely observed, and of this he says:

At 40 degrees the cluster contracts sufficiently to draw all the bees above the bottom-boards, and out of sight when you cast your eye through the opening made between the bottom-board and body by blocking up the brood-chamber three-eighths of an inch. At 41 a few bees appear below the bottom-bar; at 42, still more. This condition has prevailed all winter. That cellar, I believe, has not varied 4 degrees all winter, and it affords a beautiful object-lesson. Variations in temperature cause, as per above (contraction and expansion of the cluster), activity; and to husband vitality and stores, this is not desirable.

Acid in Wax-Refining.—An important correction is made in Gleanings in Bee-Culture, saying that instead of 5 to 25 percent, there should be only about 1 percent as much acid as water. Editor Root says:

It is our daily practice in refining the commercial product as we buy it, to use half a gallon of raw acid to two barrels (60 gallons) of water. This would be less than 1 percent of acid to water. If the wax is very dark we make a slight increase. Very light wax would require less than half a gallon. In refining commercial wax anywhere from ¼ to 1½ percent of acid may be used; but in the handling of old, dark combs, especially slumgum, it will be necessary to increase the amount to perhaps 2 percent; but in that case it would be better to render the wax again in clean water so as to get out the slight traces of acid or acid smell. The ¼ or one percent solution of acid never leaves any trace, so far as we can discover, in the wax.

Convention Proceedings.

Report of the Michigan Bee-Keepers' Convention.

BY JAS. A. DART, SEC.

The annual meeting of the Michigan State Bee-Keepers' Association was called to order by Pres. Geo. E. Hilton, at 1:30 p. m., Jan. 1, in Petoskey.

Mr. Hilton congratulated the Association on the successful results of the last meeting in procuring the enactment of a foul-brood law.

The following communication, received from Mr. T. F. Bingham, of Clare Co., Mich., was read:

Safe Wintering of Bees in Northern Michigan.

Regretting that I cannot be with you I have decided to bring before our Association a feature in the management of bees which, while perhaps not strictly new, will afford at least a sense of novelty. I will, with your permission, request that you take up the subject of safe wintering in this Northern country. I define the location, as our wintering must ever be our great danger.

Young queens found laying in October are a danger, and as they are so determined to lay there seems to be no other way of disposing of them but to kill or remove them—the bee-keeper must make the decision, even though the time seems inopportune.

One colony with a laying queen in a winter repository will jeopardize the whole apiary, especially those colonies nearest to it. In looking over my bees preparatory for winter, about October 1, I killed all queens found laying, united their bees with other colonies having plenty of bees and in all respects No. 1.

It has been argued that late-hatched bees were the bees to pass the winter; all of which may be true. But those bees must all be eight days old long before going into winter quarters.

All this will lead up to the consideration of what queens will be best adapted to winter. There is but one answer, if the premises are sound, viz.: Queens that have stopped laying when the honey season stopped. Any queen that has not settled down to maternally ways, and does not go into hibernating ways as other bees do, cannot be trusted. Any queen that does not do this will surely keep the colony in commotion long after every bee should have gone into hibernating conditions and deepest repose.

You may call to mind the winter losses of years ago, when we had late-fall honey, and concluded it was late honey that caused the losses. A late honey-flow caused late brood and late supersedure of queens, and these young queens kept the colony breeding, and dying, and worrying others, and the whole dwindled, and dwindled, and dwindled away.

Again, you may call to mind that all spring-dwindled colonies have more brood than the bees can care for. Many reasons have been advanced for these conditions. I, of course, cannot explain as clearly as if with you, but I trust I have said enough to give a plain, clear understanding of the idea that our winter losses are not entirely due to cold or poor honey.

My bees are all wintering on buckwheat and other late honey, and dying much less than last winter, when, at this time (January 1), they had used nothing but granulated-sugar syrup.

One thing above honey is the hibernating rest. If that is broken by brood-rearing, the great essential of long-continued existence is absent, and premature death takes place. Temperature has much less to do with hibernation than has been supposed. The air does not require to be cold to cause bees to hibernate. When the honey-flow stops the queen is three months' old, hibernates, and the whole colony goes into winter quarters, just as do the "ground hog," snakes, etc. It is not a matter of atmospheric temperature, but of food conditions and the unerring instincts of the bees.

I don't think I ought to have written "unerring"—so many have had so much faith that the swarming instinct could be evolutioned out of bees, etc. Any poor season will wipe out the swarming instinct for that year.

I believe you will have a delightful meeting and a profitable reunion.

T. F. BINGHAM.

Mr. Bingham's subject was then discussed as follows:

E. E. Coveyou says he does have serious winter losses, and advocated ventilating by opening the doors and windows at night, thus keeping the cellar cool. He says 8 per cent is his heaviest loss; usually much less.

D. S. Kitson wants young bees for winter, and ventilating the same as Mr. Coveyou.

Mr. Bacon put 36 colonies in for winter one year ago; lost one colony; no late swarms, old bees; put in building. One winter he covered six colonies with straw and lost two from lack of stores. He thinks it is not a hard problem to solve in this region. He wants plenty of old bees, and thinks that wintering in a building is best for early building up.

Geo. H. Kirkpatrick thinks the important part is to requeen in July. He put his bees into the cellar with 25 to 30 pounds of sealed honey per colony; hives with no bottom-board, and had very light losses from wintering.

Ira D. Bartlett kept bees seven years, and wintered them out-doors. He never lost a colony until last winter; that one starved. He gives about 30 pounds of honey put up in the latter part of September; makes winter hives containing about four colonies each, with three-inch space in the bottom; takes off covers and then puts on a piece of carpet, kiln-dried planer-shavings, two inches kiln-dried sawdust, then eight inches planer-shavings; gives dead-air space in front, sort of portico and board, and packs over with snow.

Mr. Kirkpatrick one winter put 63 colonies into a pit on a side hill—8 inches of straw over scantling, no bottom-boards, ducking over brood-frames, straw, then dirt—then straw and dirt again; he took out 60. The only ventilation was at the lower end of the pit, of a 4-inch wooden frame and wire netting over the opening. Straw was under, between and over the hives; boards over to shed rain.

Mr. Hilton says such pits are successful only on sandy soil, not in clay soil.

C. F. Smith had 22 years' experience both in and out of cellars, and in pits, and says cellars are noisy and bees hear the noise. He thinks, however, a cellar is the place. Beginners often have success out-doors, but will have a year come that will change their ideas. He doesn't see much difference between using absorbent or a cover over the frames. Last winter he accidentally knocked a cover off of one, and this colony wintered the best of all, but it was a very strong colony. He thinks after this he will take both bottom and top boards off, but have some heat-retainer, as burlaps and chaff.

Mr. Hilton thought best to leave the bottom off and have a top covered with a pillow of chaff.

Mr. Kitson asked to have discussed in this connection double and single-walled hives.

Frank Erdt thought chaff hives best, but does not like cellars; he thinks we ought to keep snow crust opened.

M. M. Hungerford says when he first came North he made double-walled hives by digging a hole in the snow; in spring he found one-foot space around the hives. He has had 20 years' experience in keeping bees, and never lost a colony in winter. Mr. Hungerford gave his amusing experience when coming North. He brought bees from Mount Pleasant on sleighs about 175 miles; it was hot over the bees; started with 12 colonies, and lost some by drowning over night, having left the sleighs standing in water, but the rest wintered fine.

J. A. Dart thinks there is no better place for safe wintering than Northern Michigan; he never lost any except once by starvation. He does not think it safe for amateurs to try Mr. Bingham's method of killing queens. He handles his bees in winter, any time he feels like it. He thinks noise or disturbance has no bad effect, and doesn't believe that bees hibernate.

Mr. Hilton thought that noises had no bad effect, and said that he wintered where railroad trains jarred the bee-building. He does not think the word hibernate, used by Mr. Bingham, is a proper term. He thought Mr. Bingham misleading, especially to young bee-keepers, but Mr. Bingham being absent he did not desire to take advantage, and preferred not to speak strongly on the subject introduced by the article. He thinks one of the causes of bad wintering is to have the bees too old; old bees are not so likely to live through the winter. He doesn't believe bees

ever hibernate. He can examine them any day and never find them hibernating.

Mrs. Mary Morrow has usually kept 75 colonies, reducing to 35 or 40 by doubling for winter. She always looks for brood—likes those especially; lost 7 colonies last winter, but usually has practically no losses. She uses chaff hives, and digs only sleet and where freezing after thaws. When she finds brood in a colony she unites one lacking it with this one.

Mr. Smith says sleet never smothers.

Mr. Kirkpatrick thinks sugar all right for winter stores, feeds quickly, and has combs $\frac{3}{4}$ capped over before wintering.

Mr. Hungerford says not to let sugar boil, but just warm, for feeding.

Mr. Hilton says scorching sugar kills bees.

Mr. Coveyou prefers, in feeding for winter, a large box full of holes, bottom on top of the frames; bees have to take the syrup or drown. It is the principle of the pepper-box feeder.

Mr. Hilton was asked if there is not danger of selling sugar as honey, from thus feeding. He said there is no danger, but only likely to prejudice neighbors who sell it. The sugar fed is consumed in winter and spring.

Mr. Dodo said that in the fall of 1900, he put bee-hives in three rows next to a high board fence, and the losses were, in 1st row, 3 per cent; 2d, 20 per cent; and 3rd, 50 per cent; the loss being greater towards the fence. He covered with chaff and straw.

Mr. Coveyou thinks the bees might have flown and stopped in the 1st row.

Mr. Kitson said a late laying queen may be unfertile. The general opinion of those present was that late laying is beneficial, there being no danger of bees being too young; the queen always stops her laying soon enough.

PUTTING UP HONEY FOR RETAILING.

Ira D. Bartlett asked as to the best method of putting up honey for retailing. He said he has trouble with tumblers not being sealed properly, and leak. He thinks the Mason jar, pint or quart, is the best can.

It was suggested by Mr. Hilton that the trouble is that inexpensive glass cans do not fit the covers, and that cans cost too much; that there is no successful and satisfactory can. The Mason jar is known to be of value. This is an unsolved problem. He says he is not satisfied, but finds it necessary to use glass. People tire of tin pails.

Mr. Kirkpatrick favors the Muth jar, or one similar.

L. C. Woodman says he sells honey at \$1.00 a gallon, and likes that method best, retaining the packages.

Mr. Smith and Mrs. Morrow say if customers buy in large quantities they will always buy so; if started with small amounts, they always buy small quantities. Except to groceries, Mr. Smith sells 1-3-pint cups in cases of one dozen each.

The general opinion of this convention is that it is difficult to improve present standard glasses; but glass jars are not all the same size, and it seems impossible to remedy it so as to sell at a low cost.

THE SALE OF COMB HONEY.

Plain sections are taking place of those with insets.

Mrs. Morrow says her customers like square sections, and the tall sections are not so well filled, and the bees are apt to fill the top part with dark honey.

Mr. Kitson says in his locality he can get two-thirds more honey with plain sections than with bee-way sections.

Mr. Coveyou says plain sections sell best, either or Danzenbaker. The thicker sections are uneven. He showed a 3d super of Ideal sections filled from a June swarm, all finely filled. He uses a unique arrangement of his own, that makes the removing of the sections from the super an easy matter.

The general opinion: Plain sections are always best, but there is little difference in the shape, that being a matter of convenience or preference.

W. Z. Hutchinson says merchants seem to prefer short-weight sections, buying by weight and selling by the piece; that in the West they sell by the case, guaranteeing a certain weight and quality. The dealers get light-weight sections, but this gives the dealers an advantage.

Mr. Hilton says the only honest way for bee-keepers is to sell by weight.

AMOUNT OF COMB FOUNDATION TO USE.

Mr. Kitson prefers full sheets of foundation for sections.

Mr. Hutchinson said if a slow honey-flow the bees can make combs, but if rapid they need foundation. He never used anything except $\frac{1}{4}$ sections, but he used different widths, preferring $1\frac{1}{2}$ -inch in order to get them well-filled, but he gets better filled sections with full foundation, sheets, and better for market. Separators are needed to produce comb honey in the best shape for market.

Mr. Coveyou uses full sheets of foundation in the brood-frames and in sections; that one colony without foundation just draws out the brood-combs; another with full foundation sheets in frames and sections will fill both.

Messrs. Kirkpatrick, Bartlett, and others all use full sheets in sections, and even bottom starters, with a space of $\frac{1}{4}$ to $\frac{1}{2}$ inch between the lower and upper foundation in sections; $\frac{1}{4}$ inch is safer.

H. E. Brown says it doesn't pay to use more than starters—bees will produce just as much honey.

Mr. Coveyou says he thinks it best to put a new swarm on starters to get more surplus honey, and to prevent making drone comb put in old drone-frames.

Mr. Hutchinson says he has had considerable experience in hiving swarms on starters to get honey. He hives on 5 Langstroth frames, and agrees with Mr. Coveyou, who uses a queen-excluder. Set the old hive by the side of the new one to get the old bees into the new hive. Bees must then go into the supers. Place in some unfinished sections, and in 20 minutes after swarming they commence to fill the sections, and if the queen keeps up with brood-comb it makes them in fine shape, and all honey goes in the supers. Mr. Hutchinson feeds sugar for winter stores, using one-fifth honey with sugar, and has no granulation. It is done in September. He feeds 15 pounds of hot syrup at one time, and has fed late successfully, but recommends feeding early.

WINTER FEEDING OF BEES.

Mr. Coveyou advises making dough of honey and sugar. He never had to feed at any time except to small and weak colonies.

Mr. Chapman hasn't fed since 1885 to any extent, and then feeds sealed honey in combs saved for that emergency. He doesn't believe feeding often is necessary. If he didn't know enough to feed in the fall he wouldn't feed now.

Mr. Hutchinson recommends making a candy of honey and sugar.

Mr. Hutchinson says he doesn't know as he would extract in order to feed, but if he could manipulate so that bees left the brood-frames empty and stored white honey in the supers, he would feed for winter. There is no danger of carrying sugar into the supers.

HOW SHALL WE DISPOSE OF OUR HONEY CROP?

Mr. Kitson says small producers sell at any price and demoralize the market.

S. D. Chapman says he sells his surplus over local consumption, direct to outside customers, not through commission men.

C. F. Pinnell says small bee-keepers hurt his prices, and he thinks some kind of trust should be formed. He sells to store-keepers in the vicinity.

Mr. Hutchinson spoke of one bee-keeper who paid more cash to his neighboring bee-keepers than the store-keeper would pay in trade, and this kept the price up in his locality.

Mr. Hilton advises selling direct.

(Concluded next week.)

Why Not Help a Little—both your neighbor bee-keepers and the old American Bee Journal—by sending to us the names and addresses of such as you may know do not now get this journal? We will be glad to send them sample copies, so that they may become acquainted with the paper, and subscribe for it, thus putting themselves in the line of success with bees. Perhaps you can get them to subscribe, send in their dollars, and secure for your trouble some of the premiums we are constantly offering as rewards for such effort.

Contributed Articles.

No. 1.—Desirability of Long-Tongued Bees.

BY PROF. A. J. COOK.

I have read with no small interest the late articles in the several bee-papers on the advantages of bees with long tongues, and the practicality of working in the breeding of bees to develop those with the ligula longer than the same in ordinary bees. I was specially interested in Prof. Gillette's article. The Colorado Agricultural College is to be congratulated in having so able, painstaking and thorough a scientist among her corps of instructors; and the apiarists of the country are to be felicitated, in that he gives a part of his valuable time and research to matters which so deeply interest them. His work in 1900, in connection with comb-foundation, no less than these researches to determine the real facts regarding the bee's tongue, are of great value.

I was the more interested as Prof. Gillette's results were so nearly a duplicate of my own, as determined and published years ago. Put Syrian in place of Cyprian, and we have a very close duplicature of my own conclusions. I proceeded a little differently from Prof. Gillette in making the measurements, though. I gave the length of the entire tongue, including the mentum, as I think this should be done. The bee stretches its tongue, undoubtedly, to the very utmost when probing the long flower-tubes for the coveted nectar. A longer mentum will permit a farther reach. Thus I think in all our microscopic work we should measure the entire length of the labium or tongue, from the base of the sub-mentum to the tip of the ligula. For obvious reasons, I would also include the sub-mentum. It is so connected with the braces at the base of this important organ, that it also serves to elongate the tongue proper though its measurement would not affect to materially change results.

As we know, the tongue, or ligula, rather, is a double tube. The inner smaller tube—which, by the way, is slit on the under side nearly the whole length, though it is so rigid as to be practically a tube—is open at both ends of the ligula, and is the channel through which the nectar from deep flower-tubes must all pass. At the base of the ligula on the upper side is an opening through which the nectar passes to the mouth, and thence on through the œsophagus to the honey-stomach. The outer tube is closed at the outer end, but opens at the base of the ligula into the mentum, and so into the blood-chamber of the body. The bee extends its ligula by forcing the blood into this outer tube. We can copy this action by laying the ligula on a glass or board, and then pressing on the mentum, with a scalpel or our knife-blade. Immediately the ligula will shoot out just as it does when the bee extrudes it.

In my measurements, I took the bees off the frames by the wings, cut the heads off by use of scissors, carefully removed the tongues, laid them bottom up on the microscopic slide which had been previously covered with a little thin transparent glue, and then by pressing on the mentum the ligula was extended to its full length. I think no other way so good to insure correct results.

I also used a glossometer, or tongue-measurer, which I placed in the hive. This was exhibited at the Paris Exposition and received favorable mention and a medal. It consisted of a piece of glass one inch by three, and a similar piece of wire-gauze, each held by wooden side-pieces. At one end the gauze touched the glass, at the other it was one-half inch from it. The glass slid in grooves so it could be pulled out, and returned. Wood also closed the thicker end of this wedge-shaped implement. To use it we simply have to draw out the glass slide, coat it thinly on the inside with honey, replace it, and suspend all in the hive. As the distance from the gauze to the glass increases as we recede from the sharp edge of the wedge, the distance which marks the removal of the honey marks most accurately the maximum tongue-length of the bees of that hive. I found, as of course I must, that the glossometer and microscope told the same story.

The black bees had the shortest tongues, the Italian next, and the Syrian bees the longest of all. The micro-

scope showed that there was very little variation in the length of the tongues of the bees of the same colony, and not much, though more, in bees of the same race.

I was not surprised to find that the Italians varied a little more than did either the blacks or Syrians. We have worked more in breeding our Italians. Selection has been made from our best colonies, in securing brood for our queens. Thus, as we should expect, these bees would vary more than blacks and Syrians, which have been left almost entirely to nature.

The fact of this variation undoubtedly explains in considerable part, the varying amounts of honey secured by different colonies. Mr. Hawley, of San Diego county, Calif., secured queens from a noted breeder in the East, and the product from these bees was surprisingly in advance of that from his other bees. Thus there is a practical side to this question, rich with promise, which I will reserve until my next.

Los Angeles Co., Calif.

Selling Comb Honey by the Piece vs. Pound.

BY J. A. GREEN.

In the recent discussion of the matter of selling comb honey by the case, the Editor has shown one side of the question, the Colorado bee-keepers another, while still others have endeavored to show that we can not all be bound by the same rules. It is an important subject, and we need all the light we can get on it.

Those bee-keepers who market honey by the case with as much variation in the net weight of the cases as has been reported in some instances, are certainly guilty of a carelessness that will react severely on the interests of bee-keepers in general. If a case of honey is figured as 21 pounds, and the average weight of a lot of cases is 21 pounds, it is quite true that there has been no dishonesty practiced as between the producer and the wholesale buyer, even if there is considerable variation in individual weights; but where this variation exists, unless the wholesale buyer re-grades the honey, or sells by weight, there is bound to be more or less injustice and dissatisfaction before it reaches the consumer.

This results in inevitable injury to honey-producing interests. Bee-keepers as a class are too apt to lose sight of the fact that the sale of the crop is quite as important as its production. They are too apt to think that once they have got their honey off their hands their interest in the matter ends. Compare their attitude with the scrupulous care taken by the producers of most other articles, that their product gets into the hands of the consumer so that it is satisfactory and pleasing to him.

If the consumer is not pleased with the honey he buys, he can, and frequently does, do without any more honey. If the retailer gets honey that he can not handle conveniently, satisfactorily and profitably, he may drop the sale of honey altogether in the future. I have frequently found such men who have become disgusted with a poor lot or two of honey they have become "stuck" on, and have quit the sale of honey entirely on that account. Honey is not the necessity or the staple article that we would like to see it, so he loses little or no trade thereby in other lines, as his customers, if they do not see honey, will not usually ask for it or go elsewhere to hunt it up.

It is a short-sighted policy that does not consider the fact that the interests of the retailer and consumer must be taken into account, and that to practice any injustice on either of them must inevitably injure our trade. This is true of all branches of trade, but particularly so in ours, where the consumer may readily dispense with our product if he wishes.

There are great and undeniable advantages in buying and selling honey by the case, or by the section, which amounts to the same thing. Grocers almost invariably sell honey by the section if its condition will at all admit of it, and after they have once experienced the advantages of the plan, they generally prefer to buy as well as sell by the piece.

To enable them to do this advantageously, there must be a certain uniformity, not only between sections in each case, but between different cases.

It is quite possible to have this uniformity. For years I have been selling my honey in our local markets by the section instead of by the pound. It has been most satisfactory to me, and that it has been so to the grocers is evidenced

by the fact that the exception of two or three whose business habits lead them to demand cheap honey, regardless of its condition, there is no longer any objection to this way of selling, but they prefer it as a more practical, business-like and time-saving method. Not only has this been the case in the local markets and surrounding towns, but I have had very little trouble to sell this way in new markets. Recently I took a quantity of honey to a city some distance away, where they were accustomed to buy their honey by the pound. In selling to eighteen grocers I heard no objection to my plan of selling, but some commended it, saying they had been making a mistake in selling by weight.

It is true that to make this method satisfactory requires very careful grading, together with such management as will secure practical uniformity in weight and appearance. To show how readily this is possible, I may say that for a number of years I have put up a large share of my honey in cases that were exact and uniform in weight as well as in appearance.

This year I put up 50 cases for this trade; 40 of them weighed exactly 22 pounds net each, and the remainder 20 pounds net. For another purpose I put up a number of 12-section cases, each of which weighed exactly 9 pounds net. Notice I say these were exact weights, as exact as your grocer uses when he weighs out sugar or coffee. Also, in all of them the sections in each case were practically uniform in appearance, with no extra light or heavy sections. Case after case of this was filled with honey just as it came from my storage-crates that without any selection tipped the beam at the exact weight. Most cases of course, required a little selection to make the weight come out right, but a moment's work was all that was required to even them up.

Several factors helped to produce this uniformity. This article is not on the production of honey, so I cannot discuss these now, except that I will say that in my opinion the principal of them is the use of a narrower section than is common. I use 7-to-the-foot, which, by making a comb more nearly the thickness which the bees build naturally, tends to much greater uniformity.

But even though your 17½ sections will not run as uniform in weight, it is an easy matter to make each case of a standard weight. Set your empty case on a double-beam scale and balance it on one beam. Put the weight at the required point on the other beam, and, with the case still on the platform, put in the honey. As you set it in, set aside all extra-light and extra-heavy sections. Of the remainder, put the lightest at one end of the case and the heaviest at the other. If the weight does not come out right, it is an easy matter by a little selection to vary it either way. When you can guarantee weights—not average weights or estimated weights, but exact weights—you will have your business on a sound commercial basis, and not until then. It will take a little time and trouble, it is true, but you will be more than paid for these.

But, you say, what shall we do with the light and heavy sections that were set aside? You can case them separately, making cases of lighter or heavier weight than the standard, or you can combine them, making cases of standard weight, even though the sections are not uniform.

It is better to have nine-tenths of your cases uniform and one-tenth very uneven, than to have all more or less uneven. Those which are over or under weight, or in which the sections are not uniform in weight, should be sold, if possible, to those who prefer to buy by weight. Incidentally, let me say that the surest way to cure a grocer of the desire to buy honey by weight instead of by the section is always to sell him your heaviest sections.

No doubt some will say that it does not pay to be so particular. It has paid me well. It has enabled me to compete successfully with the careless and ignorant bee-keepers who sell their honey for whatever they can get. Competition has been particularly strong during the past season, as I have had to compete not only with the farmers and others who keep only a few bees, who are very numerous in this locality, but with some making a business of bee-keeping, who ought to know better, but who have been selling honey all the season for from two to three cents a pound less than I have been getting. In spite of this unfair competition, I have supplied the majority of the grocers of the neighborhood and have been able to maintain my price, which is always based on the top price in the Chicago market, and which I never change throughout the season if possible to avoid it. I fix my price in the fall, after a careful consideration of the market, and only once in fifteen years has it

been necessary to change this price during the selling season.

My light-weight, but carefully graded, section, averaging a little less than thirteen ounces, has brought as much money as the average bee-keeper has received for sixteen ounces.

Adopt methods that will give you sections of uniform weight and appearance, grade your honey carefully and honestly, sell it by the piece, and you will have some strong and effective weapons in your commercial struggle against the careless and incompetent.

La Salle Co., Ill.

No. 6.—Apiculture as a Business.

Producing Not All; Marketing a Large Problem —Difference Between Selling at Home and the Foreign Trade—Effect of Competition.

BY R. C. AIKIN.

To produce is one thing, and to market is another. To produce well, and fail in marketing, means unprofitable business; and to produce poorly and market well is but little better. Both problems must be well considered in undertaking the business. Marketing at home—that is, where one has a home demand for all his product—is not so complicated or hard a problem as the outside marketing; the home selling does not require the goods to pass through so many hands or agencies. For these reasons it is evident that there must be more co-operation in the outside work. Should some other producer come into my field where there is now a local production equal to from two to four times the local consumption, he should leave out of his calculations the home trade, counting only the foreign.

There is a great and wide field in which to sell honey, in which to develop trade. When we consider the great hosts of our population who do not use honey, the thousands of communities who scarcely know what honey tastes like, there need be no question about there being an undeveloped foreign trade. By "foreign" I mean any field away from the producing point.

These foreign markets must be reached almost exclusively by the co-operation of apiarist with apiarist, and apiarists with transportation companies and middlemen—there is no other feasible way of reaching distant points. Near-by markets can be reached with only the transportation companies between, or possibly by wagon, and there is room in that field, but the biggest field is the one to be reached by the general co-operation of all concerned. This co-operation question I hope to consider later on; at least it should be considered, it is of very grave moment to all classes of producers, and more so to honey-producers than to some other branches.

Having decided to go into honey-production, or, being already in, we want to know how we are to get the best results in honey, both quality and quantity. In each locality one must adapt himself and management to conditions. Whether you have light, amber, dark, or all shades of honey; this or that flavor; slow, medium, rapid, intermittent, or all kinds of flows; all these things are factors that will influence results, and must be understood and observed in management if a good product is obtained. Just so sure as we neglect these things we will drop behind. It is a fact that the price of nearly every product is set largely by the cost of producing by the best and up-to-date methods; and he who is behind in his management is usually also behind in his accounts.

To my way of thinking, there is something radically wrong in the present competitive methods; they drive out of business the common or mediocre in knowledge, vigor, capital, and natural or acquired advantages. All cannot be at or near markets, post-office, depot, and other facilities; cannot have the same capital, the same machinery, the same materials. It is out of the province of this journal to discuss the cure for general social evils; but they exist and must be faced, hence I touch upon them to prepare the reader better for success in the line of business he has chosen. The short-cuts, kinks, better appliances and what-not pertaining to the science and detail, are things to know in any case. So much for the imperative need of much practical knowledge and understanding.

If one has a home demand that takes his product right from his honey-house, almost any kind of product can be sold—crooked and bulged sections, broken comb, extracted in bulk, and drawn right from a tank. If the trade passes

out to the village and small-town grocers, broken comb gets to be out of the question, and uneven and crooked sections also do not meet with favor. I find many customers coming to my honey-house for 15, 25 and 50 or more cents' worth of comb honey, and the customer cares not whether one section weighs a pound and a half and its neighbor only a half or three-fourths of a pound—just so long as I can give them the money's worth in good and fairly nice honey to eat.

In my practice I use separators, planning to have my section honey straight, smooth and even, such as can be retailed by the piece at 10, 12½, 15 or 20 cents each. In a large crop, however, there is now and then a cull section caused by a defective foundation or starter, or one with a brace against the separator that causes a break in the capping—some that meet with accidents in one way or another, and some that I buy from the farmers and from careless apiarists. I sell my nice, smooth honey to go to city and fancy markets, but retail the off-grades from the honey-house, weighing out by the pound.

Selling by weight from the average grocery is not practical in these days. There is a growing custom to sell almost every thing put up in regular packages, each package alike and the same weight. We find coffee, tea, baking-powders, flavors, meats, flour of every kind, in fact, almost every thing, sold in regular packages packed by the producer or manufacturer. I have heard that there are some places where butter is cut off in big chunks and weighed out, but in this part of the country and all up-to-date places, selling by the piece or package is very largely practiced, and the bee-man must come up to demand or custom else he is out-of-date, and cannot satisfactorily sell his product. Even potatoes in this country sell often "by the sack."

Honey must surely come to be sold as other things are: be put up in packages of even weight, and sold by the package at retail. It follows, then, that whether we prefer it or not, we must use separators in our supers, or some other device or method used that will obtain uniformity in weight of sections. I almost see some one or more writers hustling into print with arguments to prove my position wrong, saying it is possible to produce a fancy, even-weight section without separators. It is possible, but not PROBABLE. Possible when you have full sheets of foundation, thin sections (say 1½ inches), strong colonies, warm weather, rapid flows and skilled apiarists who know how to get the greatest number of these factors working harmoniously together. I say it is possible, but not probable—not probable with even the fair-to-good practical apiarist, and not always possible with the expert. Whenever the apiarist can make or supply all the deficiencies or defects caused by natural causes, then, and only then, can he produce a fair average finished product year by year.

A practical farmer knows that first and foremost he must have a good soil, and that it must be put in order, moist, mellow, and in fine condition to receive the seed. No matter how good naturally the soil may be, it must be prepared. After the soil is ready to receive the seed, then comes the choice of good seed to put into the soil. It is a familiar thing to most farmers to have observed or experienced the loss of a crop from a fine, well-prepared field, only because the seed was defective. So may the apiarist have the finest stock obtainable, but a miserable failure of hives and supers. Farmer bee-keepers and careless and impractical apiarists will buy the best hives on the market, then proceed to use them like a farmer putting poor seed into good ground, or good seed into hard, untilled ground. A good hive wrongly handled makes the possessor worse off than a poor hive well handled.

The value of a hive is in proportion as it enables the apiarist to apply methods, to produce results in short cuts, saving labor, obtaining control of bees, and thereby turning their habits and instincts to further our ends, and facilitating the best finished product. Do not be deceived into thinking that a "patent hive" of itself will get you more and better honey. It is method—an intelligent management and application of principles—that gets results. The hive is but the medium by which we bring about results—it is the vehicle. I do not believe we have yet the perfect hive, the one that best enables us to practice to the best advantage the knowledge we have attained to in scientific apiculture. I will confess (parenthetically) that I am striving to perfect a hive that will best enable me to apply my present knowledge of the scientific principles of apiculture, but, if I have not that scientific knowledge, or having

it will not apply it, my fine, improved hive is worse than useless. Bees, of themselves, and following instinct and nature, will be just as healthy, gather just as much honey, and be better off (they and their owner), dwelling in plain box-hives without a frame in them. Remember that the hive is but the vehicle by which the apiarist is able to apply HIS KNOWLEDGE.

Larimer Co., Colo.

* The Afterthought. *

The "Old Reliable" seen through New and Unreliable Glasses.

By E. E. HASTY, Sta. B Rural, Toledo, O.

BEES AND SOUND FRUIT.

The Canadian experiments to prove that bees do not injure sound fruit seem pretty satisfactory. By starting very hungry bees to work on sound fruit dipped in honey, and also on similar fruit with little holes punched in it, right alongside, the conditions seem to be made sufficiently alluring and natural. And when they wreck the perforated fruit, and polish off the dipped fruit without making any holes in it, it's pretty plain that they at least don't know how to do anything more. It matters comparatively little to the fruit-man whether they don't know how or are physically incapable. Still, this does not entirely obliterate previous testimony that they do sometimes learn the trick of forming a hot, seething, miniature swarm on a bunch of grapes until they either burst the berries or pry them loose at the stem. I have grapes of many varieties, and only once in twenty-odd years do I remember to have seen something that looked a little like this. By rubbing long enough in one place a single bee could wear a hole and there is some testimony on record to the effect that they sometimes learn the trick of doing this. Page 73.

ELECTING OFFICERS OF THE NATIONAL.

Say, combine the two methods of electing officers. Begin the ballot at the annual meeting, where the desirability or non-desirability of changes can be talked over. Report the vote as far as it has gone. Then (after it is seen just how the cat is jumping) allow a sufficient time for the votes of absent members to be sent in. Or, would that lead to spite-work, to defeat just the ones that ought to be elected? I premise that the Scylla and the Charybdis of the thing are, that one method elects by a disgracefully lean minority, and the other method gives the voters no chance to concentrate on anybody else than the man already in the office. Page 83.

THE WHIMSICAL HONEY-EATER.

Yes, the man who cultivates a whim that he can't eat genuine honey, but can eat imitation honey all right—he's a tough proposition. What Edison, what Whitney, will invent a method that can reach and evangelize him? Page 88.

SUGAR-MAPLE AFTER FRUIT-BLOOM—RATTLE-HEAD BEES.

Why is this thus? North Carolina reports sugar-maple blooming after fruit-bloom. Here it is the other way. Page 92.

Rattle-heads indeed were those bees that took up their quarters in a five-gallon oil-can. Page 93.

CARBON BISULPHID.

Carbon bisulphid is a live topic on account of the present probability that it will displace sulphur in the important work of killing off our vermin and things. We greatly need the best, whatever it is. Very heavy, both as a fluid and as a vapor. Four cups of it weigh as much as five of water; but it only takes two—say bushels—of the vapor to balance five of air. One result is that with care it can be poured from one bushel to another. This is a practical matter, for we need to remember the difficulty of getting it equally distributed in the top of a closet or the top of a stack of hives. Water don't run up hill. Fortunately, heavy vapor, although it doesn't love to run up hill, will eventually mix with the air and then go up to some extent. Page 99.

Questions and Answers.

CONDUCTED BY

DR. C. C. MILLER, Marengo, Ill.

(The Questions may be mailed to the Bee Journal office, or to Dr. Miller direct, when he will answer them here. Please do not ask the Doctor to send answers by mail.—EDITOR.)

Honey from Box-Hives.

On page 10 instruction is given to melt combs of honey taken from box-hives, with the hint that the melting will not improve the quality of the honey. A much better way is to get out the major part of the honey before there is any melting. Sort over the combs, and crush them, then give the honey time to drain out in a warm place.

I would not have made this correction if it had not been for the "after-thinking" my good brother Hasty gave it, page 122. It is a comfort for me to know that such sharp eyes are upon my work, and that an occasional slip will thus do less mischief. Never mind the "know-it-all style," Bro. Hasty; give us the truth.
C. C. MILLER.

Questions Answered Before.

What is the new style section D. H. Metcalf calls attention to on page 61?

Please describe "Golden's combination comb-honey hive," with plan or system, as mentioned on page 57.

CALIFORNIA.

ANSWER.—You will find these questions answered a week or two ago as fully as I could answer them.

Moving Bees 60 Rods.

I have about 100 colonies of bees, and I want to move them 60 rods. They are within the corporation, and the people are getting stung and bothered around the wells and watering-places. I have plenty of water for them, but they go elsewhere. I would like to know when would be the best time to move them. They are packed with chaff, with a shed over them. Do you think they will come back home again?

ILLINOIS.

Moving the bees 60 rods may and may not make a difference about their troubling wells and watering-places. If a good watering-place is afforded them near by, they may not care to go a great distance, otherwise they will not mind a distance of 60 rods. There will be less trouble about their going back to the old place if moved right away than if moved after they have begun to fly freely. But the unpacking and disturbance will not benefit the bees. Better wait till the weather gets a little warmer, say the middle of April; then when you are expecting a warm day, shut them up the evening before, move them in the forenoon without trying to handle them carefully, pound on the hives till they roar, then open the hives and set boards in front of the entrances.

Driving Staples in T Supers.

I am in trouble. Can you help me out?

How can I drive in staples like the enclosed without bending them all crooked? I've got to use such staples for T-tin rests, and I can't succeed in driving in a single one properly.

As they are to be used with supers having a bee-space at the top, they must be bent at right angles after being driven in. How can I bend them without losing them in the wood?

I thought that you could help me because you used the T-supers yourself. If you do not use bent staples for T-tin rests, will you please tell me what you use?

Please, please do not answer through the American Bee Journal. I can't wait so long. No doubt the answers appear by turns there, and I'd have to wait weeks. WISCONSIN.

Use a big, heavy hammer—no toy affair—so that you will not drive alternately one side then the other, and if the face of your hammer is not broad enough you might use the side of the hammer. Drive the staple in to the proper depth, then by one or more blows of the hammer bend it over while you hold

firmly against the staple the back edge of a saw or something of that kind; then draw out the saw and finish driving in the staple.

If I should do as you say, and not make answer in the American Bee Journal, that would practically bar me out from making any answer at all, and you wouldn't want that, would you? For you see, the same reason that would make it desirable for you to have your answer by mail would make others want theirs by mail, and it would hardly do for me to make fish of one and fowl of another. And if I should answer all by mail I'm afraid you'd have to wait longer than you do now, for such letters would have to take second place, and with so many I'm afraid I would get several weeks behind, whereas at present the Editor pays me for answering them and they take first place. All such letters are answered as promptly as possible, and I try to manage so there shall be no delay in getting them to Chicago, and I suppose effort is made to get them in print in the first number possible after they are received. So there is not the long delay you suppose. In some cases, however, it may happen that if the question is sent direct to me the answer will get into print a week sooner than if it is sent to Chicago.

Requeening—Dividing Colonies—Rearing Queens—Galvanized Iron and Honey.

1. I have the crossiest bees that ever were—there is no end to the fight there is in them. Last summer they kept sentries at the doors and windows all the time, and woe be to the stranger or neighbor who might visit. I tried to be as gentle with smoke and handling as possible, but sting they would. Now I know the Doctor will say, "Kill the queen." Is that so, Doctor?

2. Well, then, I am after you for the shortest way to fill up her place again.

3. One more question: How and when to divide for increase, and how to give queenless part a queen or queen-cell. I think it is best for me to divide for increase; it gives less trouble in watching swarms to double the colonies, as less is all I want; I am after the honey.

4. Do you think it the best way to put an extra hive on top of a strong colony with excluder between, near the time of honey-flow, or would you put extra below?

5. Is it best to rear queens in a full colony? Would a strong half-colony not do as well?

6. How many sheets of foundation or starters would you give a swarm at first?

7. How would this plan do for securing a few fertile queens, and to have them on hand when needed? I divide a 10-frame empty into 4 sections, by division-boards, each apartment to have an entrance of its own, then place in each section a frame with bees, brood and queen-cell, and another with honey; then let the queen get fertilized before using.

8. Will galvanized-iron tanks injure the quality of honey if standing in them for a time?

NORTH DAKOTA.

ANSWERS.—1. No, I'm not so sure I would say to kill the queens. I'm a little afraid I can't trust you to do them justice. Sometimes it seems that all the bees in the apiary are cross when it's only the bees of one colony, and it would hardly do to start with a gun after queens till very sure just which are the guilty ones, or which is the guilty one. Watch closely the behavior of different colonies, and you may find there is just one colony which has bees that follow you all over the apiary. So long as you are nowhere near their hive they may not molest you, but if you go at all near the front of their hive they promptly make an attack and keep it up until you leave the apiary entirely. Neither will it always do to issue a verdict of guilty upon one single count. There may be some special reason why a colony is very cross today without it being irretrievably bad. But if it has established a permanent reputation for viciousness then off with the head of the queen.

2. Rear queens in nuclei, and use them as needed.

3. As a leading object with you is to prevent swarming, do your dividing a little before there is danger of swarming, but not necessarily before any preparations for swarming are made. How best to divide is a very hard question. What is best for one may not be best for another. You will do well to try different ways and then decide what is best for you. One way is to take from a colony all its brood but one frame, and to take that away two or three days later. Take the bees with half the combs, and brush them off the other half, of course being sure that the queen is left in the old hive. Start a new colony with these combs, and give them a laying queen after a day or two. The queen may be given in the usual manner in an introducing-cage, or if she is given from a

nucleus she may be given without caging; merely take a frame of brood from the nucleus, queen, bees and all, and put in a hive. Another good way is the nucleus plan. Commencing with the colonies most in danger of swarming, take from them brood enough to discourage them, and distribute it among the nuclei you are building up. Better have the queen laying in the nucleus before beginning to build up much.

4. I'm not sure that I know exactly what you are after. In any case, I would have the queen below, and if the extra story were filled with extracting-frames I would put it above, although I have known bees to make good work storing in extracting-frames below. If the extra story is to help prevent swarming, then put *all* frames of brood in the upper story, leaving the queen with empty combs or foundation below. That will work well for extracted honey, and will be better to prevent swarming than the plan you tried of putting up the brood piecemeal.

5. Yes and no. Up to the time the cells are sealed no colony is any too strong, in my opinion, to care for them. There are some, I know, who think a weaker colony will do as well, but my view would do no harm, even if they are right. When a cell is about ready to have the queen emerge, it may as well be given to a nucleus, for it will be wasting something like two weeks' time of a strong colony to take care of it.

6. I don't know. The easiest way is to fill the hive at the start, and for extracted honey it may be as well. For results in comb honey it may work better to give only half the number at the start, and give the rest in ten days or two weeks.

7. First-rate. Reared many a queen that way. Of course, have entrances on all four sides.

8. Testimony varies. Reports from abroad say harm has been done by it. In this country it is generally believed to be all right. Possibly it would be best not to have a large surface of the metal in proportion to the amount of honey.

Feeding Bees in the Cellar, Etc.

1. My bees are sometimes a little restless, buzzing and coming to the hive-entrances (I winter them in the cellar). As I have not had any experience with bees I don't know whether they are short on stores. In that case, what is the best thing to do?

2. Is it harmful to open and examine the hive at this time of the year (Feb. 17)? I have been thinking about doing it, but if I should open the hive and disturb the bees, I believe I would get them all around the cellar.

3. One hive seems to be slightly damp, which I suppose it should not be. What can be done about that?

MINNESOTA.

ANSWERS.—1. The best thing to do depends upon circumstances. If you are fortunate enough to have a deep space under the bottom-bars, sections of honey, or a comb of honey, can be shoved under, taking care to see that it touches the bottom-bars, or at least that the bees get started on it. It may be necessary to stir the bees up a little to make sure of this. It may be that the top of the hive is the only part you can get at, in which case you may put in honey in frames or lay a cake of candy on top, covering up well.

2. Of course, it is not the most desirable thing to disturb the bees at all, but if carefully and gently done, the hives may be opened and frames even taken out without disturbing them very much. There is not much danger of getting them all over the cellar.

3. It is possible that the hives need a little more ventilation. If there is no ventilation above, and if the entrance is too small, the moisture from the bees will condense on the walls of the hive. It matters little how the air gets to the bees so there is plenty of it. It may be sealed air-tight above if it is all open below; and it may be sealed air-tight below if there is no covering on top; or it may have the usual summer entrance and a little chance for air to escape at the top, such a chance as would be given by laying a nail under one corner of the cover.

Swarming Management—Clipped Queens.

1. My bees usually swarm during April and May. What is the best plan to get the most honey? Is it best to let them swarm and give the prime swarm the most of the brood-frames with the brood, and give the new swarm empty supers? or is some other plan better? If you advise giving the new swarms combs from the mother colony, how many would be best? I find it to be the best plan with me to push the new swarms at the expense of the mother colony, to get the most honey. But if you will give me a better plan, I will certainly be glad.

2. If a queen is not hurt while being clipped, does the

clipping ever injure her in any way afterwards? A thing I do not like is a prime swarm to leave me and go to the woods.

SOUTH CAROLINA.

ANSWERS.—1. You're right, "to push the swarms at the expense of the mother colony to get the most honey." But instead of giving the brood to the swarm and leaving the partly-filled sections with the old colony, do just the other way. Give the swarm frames filled with foundation or with starters, and after a day or two, when the queen has begun laying in the brood-chamber, take the supers from the old colony and give to the swarm. In order to make the swarm stronger, do this: When the prime swarm issues, hive it on the old stand, and set the old hive close beside it. A week later move the old hive to a new stand. That will throw all the field force into the swarm, making the mother colony so weak that it will not send out a second swarm. All this is on the supposition that your earlier flow is the more important one. If you have a heavy flow continuing late in the season, and there is no danger of overstocking your field, then it may be better not to concentrate all your effort upon the swarm.

2. Of the great number of clipped queens I have had, I never could see that one was worse for the clipping afterward.

American and European Linden—Wintering Bees—End of Honey-Flow.

Well, here I am again asking questions, but if you get weary of me, why just turn me down.

1. What is the difference between the American and German linden? or, in other words, which of them is what bee-keepers call "basswood?"

2. Which is the better, a dead-air space about the bees, or to have that air-space filled with mineral wool or some other packing-material?

3. Is it a good plan to raise the hives say about four inches from the bottom-board for wintering bees on the summer stands—I mean to have a frame made four inches high and the same dimensions as the bottom-board, so they may be removed in the spring?

4. Have you any way to tell when the honey-flow is over in summer?

PENNA.

ANSWERS.—1. I don't know enough to tell just what the difference between the American and European linden is; but it is not very great. The American is called basswood.

2. It is considered better with the packing.

3. It is a very excellent plan. I get something like the same result by having a bottom-board 2 inches deep, filling up the extra space in summer.

4. Yes; when the bees have been doing good work at storing, and some day when you go into the apiary and feel inclined to say, "What under the sun makes the bees so cross to-day?" the probability is that the flow is letting up. So long as the flow lasts you will have little or no trouble with robber-bees; but when the flow stops you will find them inclined to pounce upon a frame of brood or honey if left exposed.

Don't you worry about being turned down for asking questions, so long as you do not easily find answers to them in your text-book. Come on with your questions; I've a whole lot of answers left, quite a large percent of them being, "I don't know."

Why Did the Bees Die?

I have lost 27 colonies during the winter. They had plenty of stores but it was very nearly as thick as taffy. Is this the reason they died? If not, what do you think killed them? They had good winter quarters.

ILLINOIS.

ANSWER.—I don't know. It is possible that along with the thickness of the honey there may have been something wrong about the quality. You do not say anything about the condition of the bees except their death. If they suffered with diarrhea, the quality of the honey was probably at fault. It is just possible that they died for want of moisture, in which case I should expect to find them in much the same condition as if they had starved; but I'm not entirely sure about this.

Our Wood Binder (or Holder) is made to take all the copies of the American Bee Journal for a year. It is sent by mail for 20 cents. Full directions accompany. The Bee Journals can be inserted as soon as they are received, and thus preserved for future reference. Upon receipt of \$1.00 for your Bee Journal subscription a full year in advance, we will mail you a Wood Binder free—if you will mention it.

GENERAL ITEMS

Winter Is Over Here.

My 28 colonies have come through in fine shape. They are gathering pollen every day. Winter is over in this locality.

H. D. MURRY.

Rankin Co., Miss., Feb. 27.

Wants More Particulars.

We are often induced to read a seemingly interesting article and at the conclusion exclaim, "O pshaw!" Just so with the buckwheat item on page 108. We have no way of judging the value of the plant by that item, as we do not know whether he had one colony or a thousand working on the buckwheat.

Bee-keepers, please give us complete reports, not half-finished, unintelligible ones. Our time is too valuable to be thus wasted.

JOHN M. DAVIS.

Maury Co., Tenn., Feb. 25.

Wintering in Chaff Hives.

Bees did fairly well last season. I started with 25 colonies last spring, and increased to 45, from which I harvested 125 cases of 24 sections each of comb honey, and 1,000 pounds of extracted.

I have 40 colonies in winter quarters, which are all right at the present time. I wintered them on the summer stands, in chaff hives of my own construction, made of lap-siding 26x20x24 inches for the 8-frame dovetailed hive, giving room for 3 inches of chaff all around, and about 13 inches over the brood-nest. The cover is made like a roof of shingles. I find that the more chaff there is over the brood-nest the better it is, because it takes up more moisture during severe, cold weather.

C. J. OLDENBURG.

Scott. Co., Minn., March 3.

A Florida Report.

If my health were good I would consider myself in good pasturage; but I am afflicted with sciatic rheumatism and a good part of the time I am not able to be with my bees. I have produced some large crops of honey here on the river. Three years ago my bees gave me 22 gallons of honey to the colony. Last year was a bad one, and they stopped at 14 gallons. I keep from 60 to 70 colonies.

We winter bees on the summer stands, of course. I have 76 colonies now, nearly all apparently in good shape. One of my neighbors had a good swarm yesterday. I study bees, read bees, work with bees, and with the help of the "Old Reliable." When asked if I am a bee-keeper my answer is, "I bee."

H. F. BAKER.

Liberty Co., Fla., Feb. 27.

A North Dakota Report for 1901.

Last season I was very successful with 8 colonies, spring count, and got over 600 pounds of honey, 70 was in sections and balance extracted; besides, I increased to 20 colonies, which were put into winter quarters the first week in November in fairly good condition.

I took a Michigan man's plan that I saw in the Bee Journal, to run more for honey than increase of bees, but I got fooled some. The plan was, when the colonies became strong in brood, to put an extra hive on top with excluder between, and keep lifting up frames of brood from below to the upper part. This was to give no swarming and lots of honey, but instead there was galore of swarming, and I fairly lost track of how they were, and where they were.

I was fortunate in having a visit at the time

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Order the Above Honey and then Sell It.

We would suggest that those bee-keepers who did not produce enough honey for their home demand this year, just order some of the above, and sell it. And others, who want to earn some money, can get this honey and work up a demand for it almost anywhere.

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of an old bee-keeper who examined all the colonies, and found out their whereabouts, and how they were for queens, brood, etc. One trouble was, the queens would hatch out in the upper part, and there was no "go out" for them.

There was one very good plan he told me of, and that was to keep a record of how each colony was, on a piece of board, day and date; so after that every hive was looked over so many days after date, and all went splendidly for honey and increase.

The basswood yielded finely, and I cannot speak too much in favor of the sweet clover. One thing I would notice about a patch of yellow sweet clover—that I raised from the seed of one plant 3 years ago—it bloomed 3 or 4 weeks before the white kind, and just at the right time, and the bees seemed fairly to go for it. Then they took to the white bloom and worked on it until the frost came in September. It grew from 7 to 8 feet tall. Our cattle will eat it whenever they get a chance.

I have had a very good time this winter looking over the copies of the American Bee Journal, and am sure to be benefitted by its useful hints.

Thanks to Dr. Miller for his clear, honest talk and answers to questions; likewise Dadant, Doolittle, and others. R. McCRAIDIE.

North Dakota, Jan. 29.

Few Dead Bees in Wintering.

Bees have wintered well so far. I never saw so few bees die during the winter in the colonies left on the winter stands. Up to within the past three weeks there were scarcely more than a dozen dead bees to the hive. It warmed up yesterday, and those on the summer stands lost a few bees by their dropping into the snow-water; in fact, there were more lost from this cause within a few hours than died all winter. H. G. QUINN.

Erie Co., Ohio, Feb. 24.

Fine Weather—Selling Candied Honey.

The weather is very fine in this part of the country, and if it stays mild we will be able to report fine wintering of bees.

I have sold all my last year's crop of extracted honey—about 24,000 pounds—over 20,000 pounds being put into lard-pails. This was sold candied. You see, the people don't want it that way. As soon as they get it they will melt it and eat it. But some prefer it candied. R. C. ATKIN.

Larimer Co., Colo., Feb. 25.

No Honey Last Season.

There was no honey here last season. I probably will have to feed my bees when spring comes. But a bee-keeper is always hopeful. FRED BIESEMEIER.

Johnson Co., Nebr., Feb. 19.

Heavy Loss in Wintering.

As I have seen no letters from this part of Illinois, I thought I would give the condition of things. We have had a cold winter here. Bees went into winter quarters in fine condition, colonies strong, with plenty of supplies, such as it was, to last them, but, alas, it was honey-dew, and the result is that nine-tenths of them are dead, and those that are living are in bad condition.

We had no clover last summer, consequently they gathered honey-dew in September and October. It looks as if we will have to go out of business, or stock up from some other locality. C. ZOLL.

Fulton Co., Ill., Feb. 28.

A Severe Winter.

We are having one of the most severe winters here in years. Snow came very early, there being good sleighing for Thanksgiving, and staying right along, with the exception of a sudden but short thaw in December, which washed terribly, tearing out bridges and doing immense damage.

We are now undergoing our third blizzard

this month, and the snow-banks were ten feet deep before this began, there being many instances where the sleigh tracks were higher than the fence on either side of the roadway and other places where the banks have been shoveled through, where it was impossible for a person standing in the field adjacent to the highway to see any portion of either team or driver as they passed through these deep, shoveled places.

Winter came so early, so we are looking for an early spring, but we have fears for the safety of our bees, on account of their long confinement and the severity of the winter.

CLARENCE WILKINS.

Cortland Co., N. Y., Feb. 19.

May Have a Fair Season.

The unexpected good rains have come, and it is raining now. It is late but we may have a fair season after all. M. H. MENDLESON.
Ventura Co., Calif., Feb. 25.

Thinks Bees Will Winter.

My bees have not had a chance to fly since last December, but I think they will come through all right as they had plenty of good honey to winter on. J. I. CLARK.
Addison Co., Vt., Feb. 25.

Honey Sold Well.

We had between 600 and 700 pounds of first-class honey last season, which I sold mostly in the home market at 25 cents per pound for both comb and extracted, and could have sold double that if I had had it.

L. E. AMMIDOWN.

Worcester Co., Mass., Feb. 24.

A Good Suggestion.

Talk is of no value without action. If everybody waits for the crowd there will not be any crowd. Mr. Ferguson (page 140) starts out with a dollar for 1902. Here is my dollar for 1903, toward the type-setting machine.

Now, come on boys; make a crowd; pay up all arrearages, and a year in advance if possible; and here we are. A. F. FOOTE.
Mitchell Co., Iowa, March 3.

[Wouldn't it be a fine thing if every subscriber who is in arrears on his Bee Journal subscription would pay everything to the end of 1902? Why not?—EDITOR.]

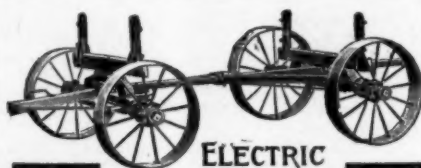


Gill's Weather-Proof Hive-Cover.

Easterners can not easily understand the effects of a Colorado sun in warping, twisting, and checking hive-covers. One man says a Colorado sun "will pull out nails and hide them." That may be exaggerated. M. A. Gill has devised a cover that he thinks will defy the worst that a Colorado sun can do. He says in the Bee-Keepers' Review:

I use the standard, 8-frame hive, and in getting out the material for the cover, I first get out a rim, the sides of which are 1x2 3/4 x 22 inches long. Along one side of the side-pieces I cut a rabbet 3/4 x 3/4 inches. Across the ends of the strips I dado in 3/4 x 3/4 of an inch, to allow the end-pieces of the rim, which are 1x2 3/4 x 14 inches long, to set in, and I nail both ways, as you will notice by referring to the cut of the cover.

On top of the rim I nail two boards that are simply ship-lapped together (very common lumber can be used). In nailing the cover together I use thirty 7-penny, cement-dipped,



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make the work easier for both the man and team. The tires being wide they do not cut into the ground; the labor of loading is reduced many times, because of the short lift. They are equipped with our famous Electric Steel Wheels, either straight or stagger spokes. Wheels any height from 24 to 60 inches. White hickory axles, steel bounds. Guaranteed to carry 4000 lbs. Why not get started right by putting in one of these wagons. We make our steel wheels to fit any wagon. Write for the catalog. It is free. ELECTRIC WHEEL CO., BOX 16, QUINCY, ILL.

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flat-head nails. I then give the cover a heavy coat of paint, using outside white made from oxide of zinc and lead, and then right on to this green paint I lay a piece of thin, unbleached muslin, cut two inches larger all around than the top of the cover. Standing at the end of the cover, I cut a two-inch gash into the cloth, two inches from the corner. This allows the side strips to lap around under the ends. I now give the whole cover another heavy coat of the same paint right on top of the cloth, and make the laps at the corners in green paint, both underneath, in the middle, and outside; and I would advise to give it another coat of paint after it is dry. Such a cover will not warp, twist nor check, and it can be exposed to all of the elements of this or any climate; and, in my opinion, if given a coat of paint, such as I have named, once in three to five years, its owner will have a good water-proof cover as long as he cares to keep bees.

When this cover is placed on the hive, it rests upon the sides only; the ends shutting down over. There is about 1/4-inch play all around, and it is at the ends where is secured the circulation through the air-chamber, which I consider one of its most important features.

As an inside covering I use two or three thicknesses of burlap, both summer and winter; and when I crowd the cover on, the burlap, being cut 1/2 inch larger than the hive, is drawn taut so that the bees have a space above the frames; and the cover is held securely without any stooping over 700 times each week to pick up a ten-pound stone.

Old Bees More Poisonous Than Young Ones.

When I have forced a very young bee to sting me, I have been surprised at the mildness of the sting. So I am not surprised that Dr. Langer reports the amount of poison carried by a nurse-bee to be .00015 of a gram, while that of a field-bee was twice as much, ranging from .00025 to .00035.—[Sometimes the sting of a worker right from the fields is so painful that I feel like groaning—yes, and I do groan—with pain. I am quite prepared to believe that the fielders have twice the amount of poison in their poison-sacs that the home-bees have.—ED.]—Stray Straw in Gleanings in Bee-Culture.

Shipping Comb and Extracted Honey in Barrels.

Henceforth I want all honey in packages of 10 pounds and under in barrels. There is no packing case that can compare to it, anyway you take it. A barrel will hold about 250 pounds when in 5-lb. or 10-lb. pails, which is more than 4 crates of six 10-pound pails each. I prefer empty sugar-barrels, which if purchased when not much in demand (I suppose any time except during apple harvest) they can be had for about 10 cents each. They are preferable to either the regular apple-barrel or salt-barrels.

We can readily see that when compared as to cost the barrel is away ahead of crates; besides, it takes less time to pack and close one barrel than it does our four crates, but the difference here is not so marked, but apart from the cheapness it is much easier to handle a barrel than any other large package that has, or even can be, devised. I would rather handle one barrel of 200 pounds or 250 pounds than half that amount in crates, especially when in one crate.

Then, again, it is handled much more carefully in barrels. It is for this reason I frequently ship comb honey in them. I referred to the contents getting soiled when in crates; there is no trouble of this sort with the barrels, so that I know of no reason why they should not be used in preference, unless the quantity is not large enough. Even then, if you fill the barrel half full it will compare favorably with crates, unless it may be slightly heavier, but they are a gain in this respect when compared to four crates.

As to honey in the comb I prefer shipping in barrels when the quantity is not large and the distance very far. Some four years ago I shipped to 18 different places in the West, one lot going to Edmonton, 200 miles north

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Every day during March
and April we shall sell

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Our fast train service from Chicago to St. Paul, Billings, Mont., and Denver, and our system of Reclining Chair Cars (seats free) and Tourist Sleeping Cars—only \$6 for a double berth Chicago to Pacific Coast—in addition to the regular Pullman cars, makes the Burlington Route the most comfortable and convenient way to the Northwest. Ask your nearest ticket agent about it or write me for a folder giving particulars.

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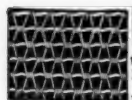
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of prize winning poultry for 1902, printed in colors, illustrates and describes 50 varieties of poultry; gives reasonable prices of eggs and stock. Many hints to poultry raisers. Send 10c in silver or stamps for this noted book. B. H. GREIDER, Florida, Pa.

51D8t Mention the American Bee Journal.



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SWEET CLOVER

And Several Other Clover Seeds.

We have made arrangements so that we can furnish Seed of several of the Clovers by freight or express, at the following prices, cash with the order:

	5lb	10lb	25lb	50lb
Sweet Clover (white).....	\$.75	\$ 1.40	\$ 3.25	\$ 6.00
Sweet Clover (yellow).....	.90	1.70	4.00	7.50
Alsike Clover90	1.70	4.00	7.75
White Clover	1.00	1.90	4.50	8.50
Alfalfa Clover80	1.40	3.25	6.00

Prices subject to market changes.

Single pound 5 cents more than the 5-pound rate, and 10 cents extra for postage and sack.

Add 25 cents to your order, for cartage, if wanted by freight, or 10 cents per pound if wanted by mail.

GEORGE W. YORK & CO.

144 & 146 Erie Street, CHICAGO, ILL.

of Calgary, or over 2,000 miles with all the changes incidental to shipping "lake and rail," but in neither this nor any of the rest was a section broken. I have reason to know, as I was on hand to see. The heads were closed in the usual way so that rolling it was probably in order.

Comb honey in barrels has this advantage, there is more spring or "give" to it than when in a box. It stands a good chance of never being so placed that the sections will be exactly the opposite way to what they should be so that the jar and shunting is not so fatal. Honey in crates will be loaded one of two ways—the right or the wrong way, no half-way between. Apart from the "give" or spring this is a strong point in favor of barrels.

As I have already said, it is when shipping comb in small lots or long distances, and not when shipped in quantities, that I favor this method. Just how large a quantity, that I am not prepared to say.—G. A. DEADMAN, in The Canadian Bee Journal.

A Common Course in Bee-Keeping.

Theoretical bee-keeping around the winter's fireside is one thing, and practical bee-keeping in the field quite another. A mere amateur may operate the former, while it not infrequently requires a whole crew of experts, aided by all members of the family, regardless of sex, color or former occupation, together with invited guests thrown in for good measure, to control the latter.

How few of us but have seen men standing around all day in the cold and perchance storm, at "the sale," only for the blessed privilege of paying three or four prices for old, dilapidated hives inhabited by weak or otherwise inferior colonies of bees, and then taking extra precautions about moving their precious treasure, only to find them dead in the spring, or, should a portion survive, keeping them year after year, ever hoping for returns, (presumably on the "open sesame" principle) until all succumb to want and neglect, when the wrecks are converted into kindling wood. This, too, when the amount of the investment would have secured not only the kindling wood, but many a pound of sweetness with which to regale friends and family.—SOMNAMBULIST, in the Progressive Bee-Keeper.

Melting Honey.

Without special conveniences for it the melting of candied honey in 5-gallon cans is not always the most satisfactory. It takes a long time to do it with a slow heat, and with considerable heat there is danger that the outer portion will be injured by the heat while the mass is still solid. J. F. Munday helps matters by stirring the granulated part into the liquid just as fast as it liquefies, thus doing the work in one-third the time, and leaving the honey possibly in a better condition. He says in the Australasian Bee-Keeper:

It is necessary to make or procure a suitable tool for the purpose of breaking up and stirring the candied honey in the tin while it is being melted; this tool I made (and I found it just the thing) from the steel back of an old scythe-blade.

I removed the back from the blade with a cold chisel and hammer, cut off about twenty inches from the point, knocked out or beat down flat the old rivets, and then flattened out the point to the shape of a screw-driver (this screw-driver point I wanted for the purpose of prising up the lids of the cans). I then straightened the rod, as we may call it, with the hammer, scraped off the rust, and polished it with a piece of sandstone and it was done.

The tool requires to be strong and stiff, as great force is necessary to cut up the candied honey in the can. Now for the operation:

When the honey in the tin has melted say $\frac{3}{4}$ -inch around the insides of the tin, put in the stirring-rod, and scrape with it the two sides of the block of candied honey near the mouth of the can, just a little the first time. Then take out the rod say with your right

30 DAYS TRIAL.

on any vehicle we make. Keep it if you like it, return it if you dislike it. We save you dealer and jobber profits. If you want to know more send for our free 22nd annual catalogue. KALAMAZOO CARRIAGE & HARNESS MFG. COMPANY, (Pioneers of the Free Trial Plan.) Station 33, Kalamazoo, Michigan.



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Queens you should Have

Does blood tell in other stock? Give your bees a chance. Stock used for breeding the queens offered—not from a sport, but my pick out of an apiary giving last season an average yield as follows:

Honey-Gathering.

102 lbs. extracted and 68 lbs. comb honey per colony besides increase and stores for winter.

Quality of Comb-Honey Produced.

"Man! It would dazzle you."—Wm. Envoy, Ontario Government Inspector of Apiaries.

Wintering Qualities.

Up to the present (January 30) I never found these bees to show the least indication of unrest—always perfectly quiet. They are wintering perfectly.—Frank T. Adams, Brantford, Canada.

General Commendation.

Out of those queens you sent me I have produced the best race or strain of bees I ever owned. Remember that is saying a lot, as I have tried every breed imported in this country. The bees winter better, build up, and stand cold chilly winds in spring better, and are more suitable than any bees I ever owned. For the season they gave me about double the honey the pure Italians did, and more increase. Glad you are going into the queen-business, and are going to join the ranks again. We are much in want of a few men like you. C. W. Post, Ex-president Ontario Bee-keepers' Association (owns 365 colonies).

S. T. Pettit, Canada's most successful comb-honey producer and bee-keeper, says: "The blood in my apiary is largely the progeny of queens sent by you, and they are grand bees."

Prices of Queens.

They are duty free to the United States. Tested, \$2.00 each; \$10.00 for 6; \$18.00 per dozen. Untested until July 1, \$1.25 each; \$7.00 for 6; or \$12.00 per dozen. Same after July 1st, \$1.00 each; \$5.50 for 6; or \$10.00 per dozen. Larger quantities, prices on application. Postage stamps taken for fractions of a dollar. To be fair to every one, no selected tested queens are offered. Every one has the same chance. The above queens are bred from a careful selection of Italians and Carniolans. Pure Italian and Carniolan queens same price. Price of full colonies on application. Orders booked as received, and filled as quickly as possible. Order early.

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IN THE WORST

places, on rough ground, with breachy stock, or where other fences fail, wont you try the PAGE? PAGE WOVEN WIRE FENCE CO., ADRIAN, MICH.

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hand, and as you do so, let it pass between the first finger and thumb of your left hand to remove the honey from it. Put on the lid, and let the honey remain in the now boiling water for ten minutes. During the interval, serve other tins the same way; if you have more than one tin melting you can keep a dozen tins going. At the expiration of the ten minutes, you will be able to cut some slices of candied honey off the block in the tin. Stir them about in the honey that is melted till no more will dissolve. Keep on doing so about every eight or ten minutes till all the candied honey is quite dissolved, but not for much longer. The water may boil all the while so long as you cut off and stir about every ten minutes. If you have to leave, you must take the water off the boil by adding cold water to it, as you know.

You will find that your tin of honey will be quite melted in less than 1½ hours, when the honey was candied as hard as possible, and that the color and flavor of it has not been injured.

New South Wales Bee-Farmers' Association.

This organization has among its twelve "Rules and Objects" the following, which are somewhat peculiar:

3. To advise members as to suitable localities for establishing apiaries.
5. That every member with more than 50 hives shall be allowed an extra vote for every additional 50 effective hives.
6. No member be eligible for office who has less than 50 effective hives, or his subscription is in arrear.
8. The principal officers be such as will undertake to meet each other in committee at least once in twelve months.
11. Supply dealers or commission agents cannot become members.
12. Members unable to attend meetings or conventions can authorize or nominate any member they know will be present to vote for them on any subject brought forward. Such vote or votes to be in addition to the member's present own vote.

Positions of Eggs in Cells.

On page 10 of Mr. Cowan's book on "The Honey-Bee" is the following paragraph:—"It will be noticed that the egg (fig. 1, A) stands in a position parallel to the sides of the cells, and this position it retains the first day. On the second day it is inclined at an angle of 45 degrees (fig. 1, B), and on a third day it assumes a horizontal position (fig. 1, C), resting perfectly flat on the base of the cell."

Also H. W. Brice says in the British Journal:

"On examining a cells just after an egg is laid we find a small white speck standing on end, attached to the base of the cell, and slightly on one side of the apex thereof; it is fixed in position by a watery, semi-sticky substance, which at this period envelops the whole of the egg. Within a few moments, however, one of the nurse-bees enters the cell—head first, of course—and after a few seconds of activity, withdraws and hurries away to the next cell to 'go on' as before. Now, let us examine the cell again, and we find that the nurse-bee has carefully placed the new-laid egg down on its side and in its orthodox and proper position at the bottom of the cell. The egg from this time forward is a matter of constant care and attention on the part of the nurses, which are persistently examining it, probably to see how it is 'getting on.' On the second day we find the bees have shifted its position to an angle of about 35 degrees; on the third it is again moved to an horizontal position; and on the fourth day it hatches out."

The correctness of this teaching has been called in question, but it is doubtful that any one has actually disproved it. Some careful observations upon the matter might be of interest.



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has a hobby which is the sheep-breeder and his industry, first, foremost and all the time. Are you interested? Write to-day.

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ITALIAN QUEENS and the WARFIELD STRAWBERRY...

D. J. BLOCHER, Pearl City, Ill.

Ask for our price-list and testimonials.

As we are spending the winter in North Dakota, all our correspondence, whether so far or business (until further notice) should be addressed,

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HONEY AND BEESWAX

MARKET QUOTATIONS.

CHICAGO, March 7.—The decline noted in last quotations are still more pronounced at this time, large offerings of Western comb are pressing for consumption which are difficult to place. Prices are nominally 13¢@14¢ for the best white, with travel-stained and light amber, 10¢@12¢, that which is candied selling as low as 7¢, with the partially candied at 9¢@10¢. No great amount of dark honey is offered. Extracted is steady in price but slow of sale, white, 5¢@7¢; amber, 5¢@5½¢; dark, 5¢, according to what it is gathered from and quality. Beeswax in urgent demand at 30¢. R. A. BURNETT & Co.

CINCINNATI, March 6.—The market in extracted honey is good with prices lower. Amber, for manufacturing purposes, brings from 5¼¢@6½¢; better grades from 7¢@8¢. Fancy comb honey sells at 16¢; lower grades hard to sell at any price. Beeswax strong at 27¢@30¢. THE FRED W. MUTH CO.

ALBANY, N. Y., Feb. 21.—Our market has not been so empty of comb honey in a long time. Fancy white comb, 15¢@16¢; No. 1, 15¢; dark and buckwheat, 13¢@14¢. Extracted, buckwheat, 6¢. Beeswax, 30¢. H. K. WRIGHT.

BOSTON, Jan. 20.—Strictly fancy comb honey in cartons, 15½¢; A No. 1, 15¢; No. 1, 14½¢; very little No. 2 to offer; stock nominally running No. 1 and A No. 1. Extracted, light amber, 7½¢; amber, 7¢; Florida honey, 6¼¢@7¢.

Our market continues somewhat dull in the demand for honey, while stocks are ample for the balance of the season, unless there should be a much larger demand than we at this moment anticipate. BLAKE, SCOTT & LEE.

NEW YORK, Feb. 8.—There has been very little movement of late in comb honey, and while there is no buckwheat on the market to amount to anything, there is sufficient quantity of the different grades of white honey. The demand having been slow of late, prices have had a downward tendency and are likely to remain so during the spring.

We quote: Fancy white, 14¢, and exceptionally fine stock at perhaps 15¢; No. 1 white at 13¢; amber at 11¢@12¢. Extracted remains dull at unchanged prices. Arrivals of late are quite plentiful of all the different grades. Beeswax firm at 28¢@29¢. HILDRETH & SEIGELKEN.

SAN FRANCISCO, Feb. 12.—White comb, 11¢@12½¢; amber, 8¢@10¢; dark, 6¢@7¢ cents. Extracted, white, 5¼¢@6¢; light amber, 4¼¢@5¢; amber, 4¢—. Beeswax, good to choice, light, 26¢@28¢; dark, 24¢@25¢.

Considering the limited quantities offering there is a fair trade in progress, both for shipment and local account. Quotable values are without change, but market is moderately firm at the prevailing figures.

CINCINNATI, Feb. 7.—The honey market has been rather dull this year. Comb honey is selling fairly, and brings as follows: White clover, 15¢; lower grades from 12¼¢@14¢. Extracted honey sells very slow, the lower grades bringing 5¢@6¢, and fancy, 6¼¢@7½¢. Beeswax, 28¢@30¢. C. H. W. WEBER.

WANTED. EXTRACTED HONEY—either large or small lots; parties having same to offer, send samples, and best prices delivered at Cincinnati, Ohio. We pay cash on delivery. THE FRED W. MUTH CO. 10Atf Front and Walnut Sts., CINCINNATI, O.

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It is a Wonder



to some people why our Rural Mail Box is so far ahead of the other 13 approved by the Government. Thirteen is said to be an unlucky number, but that is not the reason. We don't mind telling you confidentially "how it happened," if you will write and ask us to do so.

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A Nebraska customer when ordering a new supply of our fine Alfalfa honey in 60-pound cans, said: "The last I got went like hotcakes." So it does.

More people might do well if they would order this honey, or basswood, and sell it. It not only goes off "like hotcakes," but it is mighty good on hot cakes.

See honey-offers on page 171.

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"The Danzenbaker Hive I think will take precedence over all others. I am delighted with it, as it is simple, and easily manipulated."

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Nov. 30, 1901.

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You will need good hives, smokers, knives, and most of all, a good honey-extractor. Root's Cowan Rapid Reversible Extractors are used everywhere, and always acknowledged to be the best. Be sure to get one of our make.

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You should have the best wax-extractors, else large quantities of wax will be left in the refuse. See what one extensive and practical bee-keeper says of the ROOT-GERMAN STEAM WAX-PRESS:

For over 20 years past I have had to render up old-combs or cappings in larger or smaller quantities, and my experience has been extensive, for I have tried faithfully almost every known method to get all the wax out, but have never succeeded to my satisfaction until recently. I got of you a German wax-press, that comes nearer accomplishing that object than any thing I have ever tried. I am more than satisfied with it, for, if used according to directions, there is little if any wax left in the refuse. Any one used to the old methods will be astonished at the results obtained. In this press you have given those in need of it the best thing, to my mind, you have ever brought out, and I really believe all who try it will pronounce it a real treasure. There are other points of advantage that I could mention, one of which is its perfect safety—no boiling over and setting fire to every thing, and it can be left alone without care for quite a time, and every thing can be kept neat and clean, and it occupies very little room.

Belleville, Ill., Dec. 12.

E. T. FLANAGAN.

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WANTED.—Beeswax. Price, 28c cash or 30c in trade for pure average beeswax, delivered here. We want also a car of white sage extracted honey, also large lots of WHITE COMB HONEY in DANZ. sections.

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